

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method for communicating in an OFDM system comprising the steps of:

multiplexing data subcarriers associated with a first antenna of at least two transmit antennas with data symbols while modulating other subcarriers associated with other antennas with zero, of the OFDM system between at least two transmit antennas wherein the data subcarriers are separated between the at least two transmit antennas so that a data subcarrier and a mirror data subcarrier are not transmitted from a same transmit antenna of the at least two transmit antennas; and

transmitting the subcarriers, comprising the data subcarriers and the zero modulated subcarriers, so that adjacent data subcarriers are at least two subcarrier frequency bandwidths apart.

2. (currently amended) The method of communicating as in claim 1 wherein the step of transmitting further comprises toggling between the data subcarriers and the zero modulated subcarriers to be transmitted and zero.

3. (original) The method of communicating as in claim 1 further comprising the step of receiving the transmitted subcarriers by a receiver system comprising one receive antenna and one receive processing path.

4. (currently amended) The method of communicating as in claim 1 further comprising the step of

receiving the transmitted subcarriers from at least two receive antennas wherein the transmitted data subcarriers are separated between the at least two receive antennas so that the data subcarrier and the mirror data subcarrier are not received from a same receive antenna of the at least two receive antennas; and

combining the received transmitted subcarriers from the at least two receive antennas into a single data stream.

5. (original) The method of claim 1 wherein the subcarriers transmitted on a first transmit antenna of the at least two transmit antennas comprise negative, even subcarriers and positive, odd subcarriers.

6. (currently amended) A method for transmitting subcarriers in an OFDM system comprising the steps of:

multiplexing the data subcarriers of the OFDM system between a first transmit antenna and a second transmit antenna wherein the data subcarriers are separated between the first transmit antenna and second transmit antenna so that a data subcarrier is transmitted on the first transmit antenna and a mirror data subcarrier is transmitted on the second transmit antenna; and

toggling between ~~the data subcarriers to be transmitted~~ and zero modulated subcarriers so that data subcarriers transmitted on a same antenna of either the first transmit antenna or the second transmit antenna are separated from an adjacent data subcarrier transmitted on the same antenna by two subcarrier frequency bandwidths.

7. (currently amended) A method for receiving subcarriers in an OFDM system comprising the steps of:

receiving the subcarriers of the OFDM system from a first receive antenna and a second receive antenna wherein the transmitted subcarriers are separated such that (i) a subcarrier is received on the first receive antenna and a mirror subcarrier is received on the second receive antenna, and (ii) adjacent subcarriers on a same antenna of the first antenna and the second antenna are separated by ~~two subcarrier frequency bandwidths~~ zero modulated subcarriers; and

toggling between the subcarriers received on the first receive antenna and the second receive antenna to create a single data stream by removing the zero modulated subcarriers.

8. (original) The method of claim 7 wherein the subcarriers received on the first receive antenna comprise negative, even subcarriers and positive, odd subcarriers.

9. (currently amended) A method for communicating in an OFDM system comprising the steps of:

transmitting subcarriers, comprising data subcarriers and zero modulated subcarriers so that the data subcarriers are associated with a first antenna of at least two transmit antennas and the zero modulated subcarriers are associated with other antennas, of the OFDM system by multiplexing the subcarriers between at least two transmit antennas wherein the data subcarriers are separated between the at least two transmit antennas so that a data subcarrier and a mirror data subcarrier are not transmitted from a same transmit antenna of the at least two transmit antennas; and

receiving the subcarriers of the OFDM system by multiplexing the subcarriers between at least two receive antennas wherein the subcarriers are separated between the at least two receive antennas so that a data subcarrier and a mirror data subcarrier are not received from a same receive antenna of the at least two receive antennas to create a single data stream by removing the zero modulated subcarriers from the at least two receive antennas.

10. (original) The method of claim 9 wherein the OFDM system exhibits a reduction in peak to average power ratio related to $1/N$ where N is equal to a number of transmit antennas of the at least two transmit antennas in the OFDM system.

11. (currently amended) An enhanced OFDM system comprising:
a transmit multiplexer which separates subcarriers of the OFDM system between at least two transmit antennas;
a switch providing a symbol rate so that adjacent subcarriers on a same antenna of the at least two transmit antennas are at least two subcarrier frequency bandwidths apart, with zero modulated subcarriers between the adjacent subcarriers ; and
the at least two transmit antennas which transmit the subcarriers to a receiver of the OFDM system,
wherein a subcarrier and a mirror subcarrier of the subcarriers are not associated with the same transmit antenna of the at least two transmit antennas.
12. (original) The enhanced OFDM system of claim 11 wherein at least two transmit antennas are used comprising a first transmit antenna and a second antenna.
13. (original) The enhanced OFDM system of claim 11 wherein the receiver comprises one receive antenna and one receive processing path.
14. (previously presented) The enhanced OFDM system of claim 11 further comprising a receiver multiplexer for selecting between a first receive antenna and a second receive antenna.
15. (previously presented) The enhanced OFDM system of claim 12 whereby corrupted mirror subcarriers are not selected by the receiver multiplexer of the enhanced OFDM system.
16. (previously presented) The enhanced OFDM system of claim 12 wherein the transmit multiplexer further comprises a processor for processing negative, even subcarriers and positive, odd subcarriers onto the first transmit antenna.

17. (currently amended) An enhanced OFDM system comprising:

means for multiplexing data subcarriers associated with a first antenna of at least two transmit antennas with data symbols while modulating other subcarriers associated with other antennas with zero, ~~of the OFDM system between at least two transmit antennas~~ wherein the data subcarriers are separated between the at least two transmit antennas so that a data subcarrier and a mirror data subcarrier are not transmitted from a same transmit antenna of the at least two transmit antennas; and

means for transmitting the subcarriers, comprising the data subcarriers and zero modulated subcarriers, so that adjacent data subcarriers are at least two subcarrier frequency bandwidths apart.